

REMARKS

1. In response to the Office Action mailed February 11, 2003, Applicants respectfully request reconsideration. Claims 36, 38, 39, 41, 42, 44, 46-48, 50 and 53-71 were last presented for examination in this application. In the Office Action, all claims were rejected. In the foregoing amendments, claim 36 has been amended. No claims have been added or cancelled. Thus, upon entry of this paper, claims 36, 38, 39, 41, 42, 44, 46-48, 50 and 53-71 will be pending in the captioned application. These amendments do not narrow the claims in anyway, and are not made in response to any rejection.

Claim Rejections Under 35 U.S.C. §112, second paragraph

2. The Examiner has rejected the claims under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Specifically, the Examiner has rejected claim 36 for including language found at lines 14-17 of that claim (the "whereby" clause). The Examiner alleges that this language is "not discussed in the specification" and therefore "not considered over the prior art in addressing the claims." (*See*, Office Action, page 2.) Applicants respectfully traverse this rejection.

3. The subject claim limitations are expressly discussed in at least two locations of Applicants' specification. In the Detailed Description section of Applicants' application it is noted that "[w]hen the EMI shield of the present invention is applied to the surface of a printed circuit board, it adheres to and conforms with the surface of the components and printed wiring board to which it is applied. The conformal EMI shield conformally coats the printed circuit board surfaces while not changing substantially the dimensions of the coated printed circuit board regions. The EMI shield includes low viscosity, high adherence conductive and dielectric coatings, each of which can be applied in one or more layers using conventional spray atomization techniques." (*See*, Applicants' application; page 9, ln. 24 – page 10, ln. 10.)

4. In the Abstract of the Disclosure section of Applicants' application it is noted that the technical disclosure in the specification is directed to "[a]n electrically-continuous, grounded conformal EMI protective shield and methods for applying same directly to the surfaces of a printed circuit board. The EMI shield adheres and conforms to the surfaces of the

components and printed circuit board. This shield takes the shape of the covered surfaces while adding little to the dimensions of the surfaces. The EMI shield includes low viscosity, high adherence conductive and dielectric coatings, each of which can be applied in one or more layers using conventional spray techniques" (See, Abstract of the Disclosure; page 45, lns. 2-6.)

5. This claim language is also supported by the description of the embodiments in Applicants' specification. Applicants' EMI shield comprises dielectric and conformal coatings having a small thickness compared to the dimensions of the printed circuit board. For example, certain embodiments of the dielectric coating are described as having a thickness of 2 mils. (See, Applicants' application; page 13, ln. 30.) Other embodiments of the dielectric coating are described as having a thickness of between 6 and 10 mils. (See, Applicants' application; page 14, ln. 20.) Similarly, Applicants' conductive coating 104 is described in certain embodiments as having a thickness of 1 mil. (See, Applicants' application; page 16, ln. 19.) Other embodiments of conductive coating 102 are described as having a thickness of 1.1 +/- 0.2 mils. (See, Applicants' application; page 16, lns. 21-22.) Due to the relative thickness of the coatings and the printed circuit board, the viscosity of the coatings, the techniques used to apply the coatings, and other disclosed features, Applicants' specification clearly teaches those of ordinary skill in the art that Applicant's conductive and dielectric coatings conform to the surfaces of the printed circuit board as illustrated in, for example, Figures 2A-7. Thus, Applicants' EMI shield (which comprises dielectric coating 102 and conductive coating 104) does not add substantially to the dimensions of the printed circuit board surfaces to which it is applied.

6. For at least these reasons, Applicants respectfully assert that, contrary to the assertions made by the Examiner, the whereby clause of claim 36 is supported by Applicants' specification. Accordingly, this rejection should be withdrawn. Applicants note that, although unnecessary to overcome this rejection, Applicants have amended claim 36 to more precisely mirror the above-cited language found at pages 9 and 10 of Applicants' application.

Claim Rejections Under 35 U.S.C. §102

7. The Examiner has rejected claims 36, 38 and 39 under 35 U.S.C. §102 as being anticipated by U.S. Patent No. 5,703,761 to Heiss (hereinafter "Heiss"). Applicants respectfully traverse these rejections.

8. Heiss is directed to shielding flat modules having high-frequency components. (*See*, col. 1, lns. 4-6.) The embodiment of Heiss' shield illustrated in Figure 1 was addressed previously. (*See*, Responses filed June 20, 2002 and December 9, 2002.) The embodiment relied on by the Examiner in the current rejection is illustrated in Figure 2 of Heiss. This figure shows a high-frequency component 1 and other components arranged on a printed circuit board 2, wherein the components form a flat module to be shielded. (*See*, col. 2, lns. 27-31.) Heiss shields the flat module by attaching a non-conductive layer 7 to the flat module. This non-conductive layer 7 is coated with a conductive surface 6. (*See*, Figure 2; col. 2, lns. 32-41.)

9. In contrast to Applicants' claimed invention, the non-conductive layer 7 of Heiss does not conformingly adhere to the surfaces of printed circuit board 2 and components 1. Rather, Heiss' non-conductive layer 7 engulfs the flat module such that the surfaces of the module are no longer discernable. (*See*, Heiss, Figure 2.) Thus, the surface of non-conductive layer 7 in no way conforms with the surfaces of components 1 and printed circuit board 2. Rather, Heiss' non-conductive layer 7 forms a new, completely different surface; specifically, planar surfaces that define a rectangular volume which encases circuit board 2 and components 1. Accordingly, Heiss' non-conductive layer 7 does not meet the limitation of Applicants' dielectric coating as recited in claim 36.

10. Similarly, Heiss' conductive coating 6 is applied to surfaces of the three-dimensional rectangular volume defined by non-conductive layer 7. As such, conductive surface 6 is substantially planar and does not conformingly adhere to the surfaces of Heiss' flat module. Thus, the conductive surface 6 of Heiss does not meet the limitations of Applicants' conductive coating as recited in claim 36. Because neither non-conductive layer 7 nor conductive surface 6 of Heiss conformingly adhere to the surfaces of one or more regions of Heiss' flat module, Applicants respectfully assert that Heiss also does not disclose, teach or suggest the limitation of an electrically continuous EMI shield which conformingly adheres to the surface of printed circuit board regions as claimed.

11. For at least the above reasons, Applicants respectfully assert that Heiss fails to anticipate Applicants' invention as recited in independent claim 36. Accordingly, Applicants request that the Section 102 rejections be reconsidered and withdrawn.

Claim Rejections Under 35 U.S.C. §103(a)

12. The Examiner rejects claims 36, 38, 39, 41, 42, 44, 46-48, 50 and 53-71 under 35 USC §103(a) as allegedly being unpatentable over U.S. Patent No. 6,218,610 to Suzuki (hereinafter "Suzuki") in view of Heiss. Applicants respectfully traverse these rejections.

11. The Examiner asserts that Suzuki substantially teaches Applicants' claimed printed circuit board with a conformal EMI shield as recited in independent claim 36. The Examiner concedes, however, that Suzuki does not teach the use of a dielectric coating in combination with the claimed conductive coating as set forth in claim 36. The Examiner relies on Heiss for such a teaching, and takes the position that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Suzuki to include the dielectric coating of Heiss, and that such a modification would result in Applicants' invention as recited in independent claim 36. The rationale provided by the Examiner is that one having ordinary skill in the art at the time the invention was made would be motivated to make the proposed combination "for the purpose of reducing the space requirement to a minimum as taught by Heiss." The Examiner directs Applicants to column 1, lines 55-58 in support of this contention.

12. A slightly different version of this rejection was initially presented in the Office Action dated March 28, 2002. In the June 20, 2002 Response to that Office Action, Applicants demonstrated that Suzuki's coating of Suzuki neither conforms with nor adheres to the surfaces of one or more regions of the printed circuit board. In the Office Action dated October 8, 2002, the Examiner did not address the facts and arguments presented in the June 20, 2002 Response. Rather, the Examiner repeated the above rejection, summarily dismissing Applicants' arguments with a boilerplate paragraph regarding the use of hindsight reasoning when rejecting a claim.

13. In Applicants' December 9, 2002 Response to the October 8, 2002 Office Action, Applicants again presented a series of facts showing that the Examiner's contention was misplaced, further expanding on the arguments presented in the prior Response. The current Office Action also fails to address the language of claim 36 as well as these more recent arguments. In this Office Action, the Examiner mischaracterized Applicants' December 9, 2002 arguments regarding Suzuki. Briefly, Applicants showed that because Suzuki's conformal coating 330 is formed into the inner surface of shield case 330 defining a cavity

for component 220, coating 330 is spaced from surfaces of the component. Based on these facts, Applicants argued that "Suzuki's conductive coating 330 is not applied to the printed circuit board ... and thus does not conformingly adhere to the surface of one or more regions of the printed circuit board." (*See*, December 9, 2002 Response, paragraph 10.)

14. The Examiner characterized these arguments on page 7 of the current Office Action as follows: "Applicant argues ... that Suzuki's conformal coating is not applied to printed circuit board..." (*See*, Office Action, page 7; emphasis added.) The Examiner then goes on to refute this version of Applicants' claim limitation, rather than the claim limitation itself. The Examiner then broadly interprets the term "applied," and observes that step or ledge 320 of Suzuki's coating 330 is "applied" to Suzuki's printed circuit board 200 because when Suzuki's shield case 330 is placed over board 200, ledge 320 rests on the perimeter of board 200.

15. Thus, Applicants' respectfully assert that these rejections are improper because the Examiner has failed to address the express limitations of Applicants' claim 36 (by improperly omitting limitations under Section 112, and by substituting for certain limitations language taken out of the context from Applicants' prior remarks), and because the Examiner has also failed to refute the still-relevant arguments previously presented by Applicants regarding the patentability of Applicants' claim 36 over Heiss taken alone or in combination with Suzuki. Applicants request that should another office action be issued in this application, that it address all limitations in claim 36 per MPEP §2131 and expressly address the substance of Applicants' prior arguments per MPEP 707.07(f).

16. Applicants noted that claim 36 has been amended to further make explicit that the claimed conductive and dielectric coatings are conformingly adhered to the one or more regions of the printed circuit board which are shielded by Applicants' conformal EMI shield. Further, these amendments do not narrow the claims in anyway, and are not made in response to any rejection.

Dependent Claims

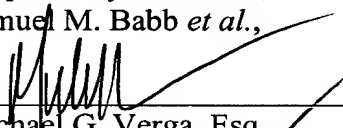
17. Dependent claims 38, 39, 41, 42, 44, 46-48, 50 and 53-71 incorporate all of the subject matter of independent claim 36 and add additional subject matter which makes them *a fortiori* and independently patentable over the art of record. Accordingly, Applicants

respectfully request that the rejections of the dependent claims be reconsidered and withdrawn.

CONCLUSIONS

18. In view of the foregoing Remarks, this application should be in condition for allowance. A notice to this effect is respectfully requested. If the Examiner believes, after entering this paper into the record, that an interview will facilitate prosecution of this application, the Examiner is requested to call the Applicants' representative at the number provided below.

Respectfully submitted,
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Dated: May 6, 2003
Docket: 10992052-1

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